

RESEARCH ARTICLE

Zaouaq, K. Climate Change, Conflicts and Forced Migration in the Middle East (2006-2022)

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Abstract

In the Middle East region, the repercussions of climate change on migration and conflicts are increasingly perceived as a security issue as long as it's so far among the world's most impacted regions by water scarcity, rising temperatures, desertification, aridity, and food insecurity. Based on a literature review of articles published from 2006 to 2022, this research aims to understand and to examine the relationship between climate change, conflicts and forced migration in the Middle East. The connection from climate change to conflicts and forced migration, which we analyze in this paper, is debated in regard to some well-known causal models, which suppose that climate change results in resources scarcity, which in turn leads to forced migration as well as conflicts. Among these models are the pull and push theory of migration, alongside with the Homer-Dixon's scarcity theory. The research findings show that climate change increases people's vulnerability in the Middle East and drive them

to migration which represents then an adaptation strategy. This review finds also that the literature has not established a strong connection between climate change and conflicts, neither between these two drivers and forced migration. However, there's a consensus among literature that the links between climate change, conflicts and forced migration in the Middle East region should not be omitted or neglected.

Keywords: climate change; conflicts; forced migration; adaptation; Middle East.

I. Introduction

Since the dawn of civilization, the Middle East¹, particularly the 'fertile crescent' region², has relied heavily on agriculture, which remains a major source of employment.

However, in recent decades, countries in this region have faced severe climate change impacts, notably droughts and water scarcity. These impacts are expected to intensify, raising doubts towards the capacity of local agriculture to support the population, which is projected to double by 2070 (Waha, 2017). As a result, migration has become an alternative for those forced to move due to climate change impacts, such as extreme weather events or conflicts arising from these changes³.

¹ The Middle East is, generally speaking, the region from the Mediterranean Sea to the Persian Gulf, usually encompassing Egypt, Sudan, Israel, the Palestinian territories, Jordan, Lebanon, Syria, Turkey, Iraq, Iran, Saudi Arabia, the United Arab Emirates, Kuwait, Oman, Qatar, and Bahrain.

² Called for its rich soils, the Fertile Crescent area is situated in the Middle East. Due to its "abundant access to water, the earliest civilizations were established in the Fertile Crescent, including the

Sumerians". Now, this region includes southern Iraq, Syria, Lebanon, Jordan, Palestine, Israel, Egypt, and parts of Turkey and Iran. See *Fertile crescent*. (n.d.).

³ The definition of forced migration is in line with the nexus "climate change, forced migration and conflict" as it refers to the involuntary movements of people that are caused by conflicts, along with climate and environmental issues. The European Migration Network (EMN) defined, in this regard, forced migration as "a migratory movement in



In the Middle East, the consequences of climate change on migration flows differ from one country to another according to the levels of income and the levels of dependency on agriculture. Gulf Cooperation Council members (Saudi Arabia, Bahrain, UAE, Qatar, Kuwait, and Oman) are less impacted by these impacts due to their high-income levels and their economic dependency on oil production rather than agricultural production. Conversely, the other countries such as Egypt, Iran, Iraq, Jordan, Lebanon, Syria, and Yemen, which represent low- and middle-income countries and whose agriculture is mostly rainfed are more vulnerable to climate change impacts. Consequently, they are at high risk of environmentally related conflicts and migratory displacements.

The Middle East suffers from severe climate effects, especially drought, water scarcity, limited rainfall, and desertification. Due to the combination of all these factors, this region is considered “the most water-stressed area in the world” and is going to become a climate change hotspot with “the region warming up almost twice as fast compared to the global average” (Borghesi & Ticci, 2019, p. 290; Zittis, 2022, p.10). Intergovernmental panel on climate change (IPCC) reports pointed out that global warming will lead to more drought and is going to affect the agriculture of the Middle East countries, which is rainfed agriculture (Gleditsch, 2021). In this region, climate change is likely to diminish water discharge by “an additional 15-

45% by the end of the century” (Waha et al., 2017).

Extreme climate change events were also observed in Iran which is vulnerable to floods and drought. In this country, the lack of precipitations and droughts caused the drying of rivers and lakes, such as Lake Hamun and Lake Urmia which have lost over 90 percent of their amount of water in the last decades (Weiss, 2018). In addition, Iran was devastated between March and April 2019 by the worst climate disaster of the past decade, notably extreme floods, which caused the destruction of thousands of houses and damages amounted to \$4.7 billion (Internal Displacement Monitoring Centre, 2021).

Syria experienced so far severe waves of drought. In 2006, the drought ruined agricultural lands and crops in eastern Syria, affecting “at least 85 percent deaths of livestock” (Waterbury, 2013), and “more than 50 percent reduction in barley and wheat production” (Erian; Katlan, and Babah, 2011). All this led to food insecurity, and more importations of wheat, rice, and other livestock.

Other countries, such as Yemen and Iraq, often faced devastating floods. For example, flooding hit Ninewa and Salah al Din governorates in Iraq in November 2018, whereas the Marib Governorate in Yemen was affected on 31 July 2020 by a widespread flood which caused the displacement of thousands

which an element of coercion exists, including threats to life and livelihood, whether arising from natural or man-made causes (e.g. movements of refugees and internally displaced persons as well

as people displaced by natural or environmental disasters, chemical or nuclear disasters, famine or development projects)” *Fertile crescent*. (n.d.).



of people and serious damages (Internal Displacement Monitoring Centre, 2021).

From Syria to Iraq and from Yemen to Iran, the same climate disasters occurred, notably floods, earthquakes, desertification, water scarcity and droughts. But floods and droughts remain the common worst issues that affect the Middle East countries, which worsened conflicts and engendered massive displacements especially internal ones from rural to urban areas.

Studies that examine climate change-induced migration and conflicts, differ widely in the way they point out this relationship. While most literature reviews agree that the Middle East is one of the most affected areas by climate change impacts, notably water scarcity and drought (Borghesi and Ticci, 2019 ; Waha et al., 2017 ; Weiss, 2018 ; Waterbury, 2013), many other studies are skeptical about the contribution of climate change to conflicts and political instability in this region, but don't neglect the potential that climate change has in leading to increased risk of conflicts (Scheffran, 2020; Smith, and Krampe, 2019 ; Kelley, 2015 ; Kerksenbrock, 2019).

Finally, studies don't differ regarding the impacts of climate change on migration, as they consider that the displacements that occur in the region are merely induced by severe climate conditions (Potsdam Institute for Climate Impact Research, 2015 ; Wennersten, and Robbins, 2017 ; Balsari & Dresser & Leaning, 2020 ; Jäger, and al., 2009). However, whether or not climate change induced migration leads to conflicts, remains an important area for future researches,

inasmuch as the existing literature refer to social, political and intergroup acts of violence or conflicts, to which climate induced migration contribute indirectly or is likely to contribute (Ergin, 2017 ; Sanderson, Kayden, and Leis, 2016 ; Gleick, 2014 ; Erdoğan, and Cantürk, 2022).

II. Methodology

This article uses a qualitative approach, or results framed in the existing literature that addresses climate-conflict-migration nexus. It considers secondary data sources that devotes particular attention to theoretical and empirical links between climate change, conflicts, and migration. The basic assumption of this article represents a systematization of the pull and push theory which considers migration as the result of how push factors compel a person to migrate and how pull factors attract the migrant to a new place. In the context of climate change, push factors include famine drought, land degradation, water scarcity, while pull factors comprise political stability, better climate conditions and more professional opportunities.

The article also reflects the Homer-Dixon's scarcity theory, insofar as it emphasizes the impacts of climate change on resources scarcity, and therefore on migration and conflicts exacerbation. The main findings of this article turn around the fact that environmental, economic, and social impacts of climate change are leading to migration in the Middle East, as well as conflicts and risk of destabilization.



III. Discussions

a. Climate change as a catalyst of conflicts in the Middle East

During the last decades, the Middle East has been often the theater of conflicts, including conflicts in Iraq, Syria, and Yemen, as well as terrorist acts committed by al-Qaeda, Islamic State, and other terrorist actors.

Among these conflicts, many were affected by climate change which played an important role in exacerbating them and multiplying related security risks. Droughts, degradation of soil, extreme weather events, and the scarcity of water result in the loss of crops and livelihoods, which can mainly trigger conflicts (Waha et al., 2017 ; Feitelson, and Tubi, 2017).

However, the impact of climate change on conflicts varies and depends on whether the conflict questioned is international or non-international. In fact, climate change remains a stressor that contributes to conflict escalation in case of international conflicts, while it's a dominant factor concerning non-international conflicts.

In the Middle East, most of the conflicts that have erupted in recent decades are intra-state, except the case of the Nile dispute. Regarding that, it's worth noting that

Egypt whose water resources come in large part from the Nile was often on the verge of conflict with other Nile Basin countries, especially Ethiopia. The disproportion between water demand and supply makes this confrontation between these two countries more to occur⁴, especially given the fact that Egypt relies on the Nile River for 95% of its water consumption (Scheffran, 2020). Egyptian dependency on the Nile River water resources will continue to grow over the coming years with the increasing frequency of climate hazards.

Given the dominance of intra-state conflicts in the Middle East, our analysis focuses on these conflicts, including local or communal disputes. For instance, some researchers (Smith & Krampe, 2019) argue that droughts have increased political instability in Syria. Colin P. Kelley et al. stated that the 2007–2010 drought in Syria is partly responsible for the conflict in this country (Kelley, 2015).

The mismanagement of shared water resources around other transboundary water sources, namely the Euphrates, Tigris, and Jordan rivers increases political destabilization and the potential violence or conflicts in this region. The Jordan River Basin is already subject to intense conflicts concerning water access and supply due to the unfair share of water, as seen with Israel which depletes

⁴ Since the announcement of the Ethiopian plan to construct the "Grand Renaissance Dam" in 2011, Ethiopia was threatened once by the former Egyptian president Mohamed Morsi in 2013 and then warned in 2021 by the actual President Abdel Fattah al-Sissi.

Egyptian threats over dam construction projects in Ethiopia aren't recent. They were expressed decades before by the former Egyptian presidents Housni Mubarak and Anouar Sadate.



“more water per person than the Palestine population and holds veto rights over their water development” (Scheffran, 2020). Transboundary water resources are at the core of the Israel-Palestinian conflict, in which “both states have accused the other of monopolizing and mismanaging water sources” (Augsten; Gagné, and Su, 2022).

The Euphrates and Tigris rivers are also the scene of political disputes between riparian countries over water resources use. Syria which depends most on the Euphrates River and Iraq which relies mostly on the Tigris for its water supplies, expressed often their concerns about “Turkish control over their respective vital waterways” (Scheffran, 2020).

In all these cases, climate change could make “water sharing more complicated and disputes more difficult to resolve” (Kerssenbrock, 2019). The situation can be worsened by low capita income, knowledge, technology, and unequal distribution, which make the Middle East countries “more vulnerable compared to Europe and are less able to adapt and mitigate conflict” (Schilling, and al., 2020; Scheffran, 2020).

At the local scale, conflicts are most likely to occur because of climate change. Scarcity and water shortage are dominant factors in conflicts between farmers and pastoralists. Likewise, some cities in the Middle East, such as Cairo in Egypt are more vulnerable to climate change impacts, especially water scarcity, production losses,

and land degradation, added to population growth and urbanization. This is particularly relevant in the case of Egypt because the Nile is a vital source of water and food for the country. However, the Nile flow decreased significantly due to climate change and repeated droughts (De Guglielmo Weber, and al., 2023). All these factors can trigger competition between people and lead to violence and urban conflicts.

Floods, droughts, and storms which are worsened by climate change may intensify conflicts, as shown in a study that established a “correlation between temporal frequencies of armed conflicts and severe natural disasters in the Middle East and North Africa (MENA)” (Kerssenbrock, 2019). This study set out “an approximate 50% probability that a conflict outbreak was preceded by a natural disaster, especially within three years” (Kerssenbrock, 2019).

b. Linking climate change to migration-conflict nexus in the Middle East

In the aftermath of the Arab Spring, there were millions of people who migrated from Syria, Yemen, and Iraq to neighboring countries⁵ and even Europe not only because of the conflicts that emerged in these areas but also due to climate severe conditions and water scarcity. These migratory flows lead to “the formation of refugee camps, causing tensions between bordering states, landowners, and migrants” (Ergin, 2017). Drought and desertification caused also mass

⁵ In October 2016, the number of Syrian refugees located in neighboring countries and registered by the UNHCR was estimated to be 2,733,655 in

Turkey, 1,033,513 in Lebanon, 656,400 in Jordan, 225,455 in Irak and 117,350 in Egypt (Doraï, 2018, p.114).



migration from rural to urban areas in these countries of the Middle East. Urbanization growth that derives from these internal migratory movements leads, in turn, to urban environmental degradation, stress on remaining resources, food price increases, unemployment, social tensions, and the increase of urban disaster risks, including floods, engendering “significant losses of livelihood while simultaneously increasing the risk of conflict” (Sanderson, Kayden, and Leis, 2016).

In 2015, Potsdam Institute for Climate Impact Research stated in a report that:

“The agriculture in the Middle East and North Africa is severely affected by climate change showing the immense challenge of these regions about feeding its population, in the longer-term increased outmigration might be necessary as part of the solution.” (Potsdam Institute for Climate Impact Research, 2015)

Wennersten and Robbins highlighted the links between climate change and forced displacements of people during the civil war in Syria by asserting that:

“Syria is driving the refugee crisis, and climate change has driven the refugee crisis; it is the clearest scientifically established link yet between climate change and refugees who are fleeing political unrest.” (Wennersten, and Robbins, 2017)

These findings are in line with most of the literature published on the climate change-conflict-migration nexus in Syria. They

suggested that the prolonged drought that occurred in the East and Northwest of Syria from 2006 to 2010 linked to climate change constrained pastoralists and farmers to “abandon their land, sell their animals, and trek to the cities in the western region of Syria” (Balsari & Dresser & Leaning, 2020). In 2010, Food and Agricultural Organization of the United Nations (FAO) estimated that drought has forced nearly “1.5 million people to leave their villages and move to the suburbs of Damascus and other cities like Aleppo and Daa’ra” (Food and Agricultural Organization of the United Nations, 2010). This wave of mass migration added to the 1.5 million Iraqi refugees who moved to Syria during previous years fleeing war in Iraq, puts pressure on existing resources and exacerbates the socio-economic conditions of the population in Syria, which contributes to the transformation of the street protests that erupted in the aftermath of the Arab Spring into a civil or strife war (Gleick, 2014).

In Egypt, sea level rise affects the Nile Delta (Jäger, and al., 2009), which is the most productive region in the country, and some urban areas such as Alexandria will be rudely impacted by this phenomenon in the future, driving millions of people to migrate internally to more densely urban cities, such as Cairo, which could be a trigger of future conflicts among the population and between the population and the government.

Climate effects may also represent factors of forced migration and conflicts in Iran. As stated in a report published by the Internal Displacement Monitoring Centre (IDMC), an estimated a half million people were displaced in Iran because of the extreme



floods that the country experienced between March and April 2019 (Internal Displacement Monitoring Centre, 2021). Climate effects can result in instability and potential conflicts in Iran, as it was the case with the recent protests in Iran, triggered by “the country’s drought and water shortage, which has been ongoing since 2020” (Erdoğan, and Cantürk, 2022).

In addition, Iraq has been affected by droughts since 2007, with intense levels observed in 2015 and 2016, resulting in an increasing number of farmers who “have stopped working their land, livestock owners have sold their animals, and significant numbers of people have moved away in search of alternative sources of income” (Internal Displacement Monitoring Centre, 2021). The number of drought-related displacements was estimated to be more than “20,000 displacements in 2018 and 2019, with the governorates of Basra, Missan and Thi-Qar being the most affected” (Internal Displacement Monitoring Centre, 2021). These displacement flows are likely to make Iraq’s stability more vulnerable, with the probability of re-emergence of conflicts in some parts of the country, where terrorist groups were very active.

Among all extreme climate events that affected the Middle East, floods cause, in particular, the most climate displacements in this region. They’re responsible for “making displacement chronic, cyclical, and protracted in the region” (Internal Displacement Monitoring Centre, 2021), especially in countries that are often confronted to conflicts, such as Syria, Iraq and Yemen. For instance, in November 2018, “widespread flooding hit Ninewa and Salah al Din

governorates in Iraq, provoking the displacement of more than 35,000 people” (Internal Displacement Monitoring Centre, 2021). Likewise, flooding occurred in the Marib Governorate in Yemen on 31 July 2020 caused the displacement of thousands for a second or even third time (Internal Displacement Monitoring Centre, 2021).

Reducing the risks of climate-related conflicts and migration requires adaptive and sustainable management measures, such as the deployment of modern irrigation technologies, the construction of new more dams, inter-basin water transfers, and desalination. Those actions are good examples of efficient policy measures. However, there’s a need for cooperative policies, institutional mechanisms, as well as inter-state and multilateral cooperation. Countries with better economic capabilities and resources like Saudi Arabia should make the most vulnerable countries of the region (such as Irak, Egypt and Syria) benefit from their technical capacity and financial assistance to mitigate climate impacts and their associated migration risks and conflicts. More important, there is indeed a need for an agreement between the riparian countries around the Tigris and Euphrates Rivers about the allocation of transboundary water resources, water quality standards, responses for floods and droughts, and dispute settlement mechanisms.

IV. Conclusion and Recommendation

Even if it was outlined by the literature as the main driver of conflicts and forced migration, climate change is not the only factor. There are some other important factors



that caused conflicts in the middle east (such as the mismanagement of natural resources, lack of democracy, and political instability, etc). The same could be said about forced migration whose causes don't consist only of climate change and conflicts, but are also turning around poverty, inequalities, corruption, and lack of governance, etc.

According to some authors, the drought was not a direct trigger of Syria's civil war, but it was the government's failure to respond to drought impacts (Friedman, 2013). They pointed out the fact that "the Assad regime corrupted the agricultural sector in Syria and exploited the resource by over-extraction of groundwater" (Akther, and Mahbulul Alam, 2020), and that was the reason why the small farmers could not survive and were forced to migrate to urban areas for work when the drought occurred.

While climate change is not considered as the only driver of forced migration, there's no consensus on whether or not climate change contributes to conflict exacerbation. However, this link should not be omitted, nor dismissed.

In some countries of the Middle East such as Yemen, the lack of data does not help to determine clearly if climate change is a trigger of forced migration and conflicts. The interlinkage between climate change, forced migration and conflicts in the Middle East remains subject to different interpretations, assumptions, which are sometimes contradictory and other times convergent. However, this link should not be omitted, nor dismissed.

The research findings may serve as a base to explore suitable policies, measures and actions to be taken in the Middle East and North Africa area, in order to overcome climate-related migration and conflicts risks.

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